What is claimed is:

1. A sintered sliding material comprising a sintered compact, wherein said sintered compact contains Cu or Cu alloy in an amount of 10 to 95wt% and a residual made of Mo principally and has a relative density of 80% or more.

2. A sintered sliding material according to claim 1, wherein said sintered compact is formed such that a Mo compact is sintered simultaneously with being infiltrated with Cu or Cu alloy, said sintered compact containing Mo in an amount of 35 to 75wt% and having a porosity of 7% or less by volume.

3. A sintered sliding material according to claim 2, wherein said Mo compact is composed of Mo powder having an average grain size of 10μm or less, said Mo compact containing a solid lubricant, having an average grain size of 30μm or more, in a content of 5 to 60% by volume and/or hard particles in a content of 0.2 to 10% by volume.

4. A sintered sliding material according to any one of claims 1 to 3, wherein Cu alloy phase in said sintered compact contains Sn in an amount of 5 to 20wt%.

5. A sintered sliding material according to claim 4,

wherein Cu alloy phase in said sintered compact contains one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Zn of 0.1 to 10wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

6. A sliding member comprising:

a back metal and a sintered sliding body combined with the back metal,

wherein said sintered sliding body is composed of a sintered compact containing Cu or Cu alloy in an amount of 10 to 95wt% and a residual made of Mo principally, said sintered compact having a relative density of 80% or more.

7. A sliding member according to claim 6, wherein said sintered compact is formed such that a Mo compact is sintered simultaneously with being infiltrated with Cu or Cu alloy, said sintered compact containing Mo in an amount of 35 to 75wt% and having a porosity of 7% or less by volume.

8. A sliding member according to claim 7, wherein said Mo compact is composed of Mo powder having an average grain size of 10μm or less, said Mo compact containing a solid lubricant, having an average grain size of 30μm or

more, in a content of 5 to 60% by volume and/or hard particles in a content of 0.2 to 10% by volume.

9. A sliding member according to any one of claims 6 to 8, wherein Cu alloy phase in said sintered compact contains Sn in an amount of 5 to 20wt%.

10. A sliding member according to claim 9, wherein Cu alloy phase in said sintered compact contains one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Zn of 0.1 to 10wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

11. A sliding member according to any one of claims 6 to 8, wherein sliding surfaces of said sintered sliding body are formed with recesses in which any one of a lubricating compound of a lubricating oil and a wax, a lubricating resin, a solid lubricant and a lubricating compound of a solid lubricant and a wax are filled.

12. A sliding member according to any one of claims 6 to 8, wherein said back metal is any one of a back metal of a sliding bearing, a substrate of a bearing shaft supporting a rotating body and a substrate of a spherical bushing.

13. A sliding member comprising:

a sintered layer combined with a steel back metal, and,

a sliding layer formed by lining said sintered layer with at least any one of a lubricating compound, a lubricating resin and a solid lubricating composite consisting of a solid lubricant and a resin while being filled therewith,

wherein said sintered layer is combined with said steel back metal in a manner such that a mixed powder of bronze alloy, containing Sn of 5 to 20wt%, in a content of 10 to 95wt% and a residual made of Mo principally is dispersed in said steel back metal and sintering-bonded thereto.

14. A sliding member according to claim 13, wherein said sliding member is formed into a cylindrical shape or an approximately cylindrical shape by bending said back metal with said sliding surface layer being inside or outside.

15. A sliding member according to claim 13 or 14, wherein said steel back metal is treated such that a surface subjected to said sintering-bonding is plated with Cu or sintering-bonded with a bronze based, a lead bronze based, a Fe-Cu-Sn based or a Fe-Cu-Sn-Pb based

sintered material.

16. A sliding member according to claim 13 or 14,

wherein said mixed powder is granulated to have an average grain size of 0.05 to 2.0mm.

17. A sliding member comprising:

a sintered layer combined with a steel back metal,

small pieces of a sintered sliding material, said small pieces being dispersed in said sintered layer, and

a bronze based sintered compact disposed around said small pieces,

wherein said sintered layer is made such that a bronze based, a lead bronze based, a Fe-Cu-Sn based or a Fe-Cu-Sn-Pb based sintered material is sintering-bonded to said steel back metal,

said small pieces are combined with said steel back metal with being enveloped with said bronze based sintered compact, and

said sintered sliding material is composed of a sintered compact containing Cu or Cu alloy in an amount of 10 to 95wt% and a residue made of Mo principally and having a relative density of 90% or more.

18. A sliding member according to claim 17, wherein said sintered compact is formed such that a Mo compact is sintered simultaneously with being infiltrated with Cu

or Cu alloy, said sintered compact containing Mo in an amount of 35 to 75wt% and having a porosity of 7% or less by volume.

19. A sliding member according to claim 18, said Mo compact is composed of Mo powder having an average grain size of 10μm or less, said Mo compact containing a solid lubricant, having an average grain size of 30μm or more, in a content of 5 to 60% by volume and/or hard particles in a content of 0.2 to 10% by volume.

20. A sliding member according to any one of claims 17 to 19, wherein Cu alloy phase in said sintered compact contains Sn of 5 to 20wt% and further one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Zn of 0.1 to 10wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

21. A connecting device for connecting a pair of components in a rotatable and turnable manner, in which one component is arranged via a bearing axis supported by the other component and a bearing bushing fitted onto the bearing axis, or connecting a pair of components in a rotatable and turnable manner and also receiving a thrust load applied between the components by a thrust

bearing, in which one component is arranged via a bearing axis supported by the other component and a bearing bushing fitted onto the bearing axis,

wherein said one or more elements of said bearing axis, said bearing bushing and said thrust bearing are made of a sliding member, and

said sliding member comprises a back metal and a sintered sliding body combined with the back metal,

wherein said sintered sliding body is composed of a sintered compact containing Cu or Cu alloy in an amount of 10 to 95wt% and a residue made of Mo and having a relative density of 80% or more, and

said back metal is any one of a back metal of a bearing, a substrate of a bearing axis and a substrate of a spherical bushing.

22. A connecting device for connecting a pair of components in a rotatable and turnable manner, in which one component is arranged via a bearing axis supported by the other component and a bearing bushing fitted onto the bearing axis,

wherein said bearing axis is made of a sliding member, and

said bearing bushing is made of a steel pipe, which is not heat-treated for hardening and is formed with necessary lubricating grooves at a sliding surface thereof, and

said sliding member comprises a back metal and a sintered sliding body combined with the back metal,

wherein said sintered sliding body is made of a sintered compact composed of Cu or Cu alloy in an amount of 10 to 95wt% and a residue made of Mo principally, said sintered compact having a relative density of 80% or more, and

said back metal is a substrate of the bearing axis.

23. A connecting device for connecting a pair of components in a rotatable and turnable manner, in which one component is arranged via a bearing axis supported by the other component and a bearing bushing fitted onto the bearing axis,

wherein said bearing axis is made of a sliding member, and

said bearing bushing is made of a Fe-C based, a Fe-C-Cu based or a Cu-Sn based oil retaining sintered material,

wherein said sliding member comprises a back metal and a sintered sliding body combined with the back metal,

wherein said sintered sliding body is made of a sintered compact composed of Cu or Cu alloy in an amount of 10 to 95wt% and a residue made of Mo principally, said sintered compact having a relative density of 90% or more, and

said back metal is a substrate of the bearing axis.

24. A connecting device according to any one of claims 21 to 23, wherein said sintered compact is formed such that a Mo compact is sintered simultaneously with being infiltrated with Cu or Cu alloy, said sintered compact containing Mo of 35 to 75wt% and having a porosity of 7% or less by volume.

25. A connecting device according to claim 24, wherein said Mo compact is composed of Mo powder having an average grain size of 10μm or less, said Mo compact containing a solid lubricant, having an average grain size of 30μm or more, in a content of 5 to 60% by volume and/or hard particles in a content of 0.2 to 10% by volume.

26. A connecting device according to any one of claims 21 to 23, wherein Cu alloy phase in said sintered compact contains Sn of 5 to 20wt% and further one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Zn of 0.1 to 10wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

27. A connecting device according to any one of claims

21 to 23, wherein said bearing axis is formed with said sintered sliding body at supported portions of said bearing axis by the component.

28. A connecting device according to any one of claims 21 to 23, wherein said connecting device is used for any one of connecting means of an operating machine, a track link and a track roller of a crawler vehicle, an equalizer bar suspension supporting a vehicle of a bulldozer and a suspension unit of a dump track.

29. A sintered sliding material comprising a porous sintered material,

wherein said porous sintered material is composed of Mo or Mo alloy containing one or more elements selected from the group consisting of Cu, Ni, Fe and Co in an amount of 10wt% or less, said porous sintered material, having a porosity of 10 to 40% by volume, containing a lubricating oil or a lubricating compound of a lubricating oil and a wax filled in the pores.

30. A sintered sliding material comprising a porous sintered material,

wherein said porous sintered material is composed of Mo or Mo alloy containing one or more elements selected from the group consisting of Cu, Ni, Fe and Co in an amount of 10wt% or less, said porous sintered

material, having a porosity of 10 to 40% by volume, containing a low-melting metal, which is principally made of one or more elements selected from the group consisting of Pb, Sn, Bi, Zn and Sb and adjusted to have a melting point of 450°C or less, or an alloy of the low-melting metal filled in the pores.

31. A sintered sliding material according to claim 29 or 30, wherein said porous sintered material contains one or more hard particles selected from the group consisting of intermetallic compound, carbide, nitride, oxide and fluoride, which are harder than Mo phase or bronze phase, dispersed therein in a content of 0.2 to 10% by volume.

32. A sintered sliding material according to claim 31, wherein said intermetallic compound includes one or more intermetallic compounds selected from the group consisting of MoNi based, MoFe based, MoCo based, FeAl based, NiAl based, NiTi based, TiAl based, CoAl based and CoTi based intermerallic compounds.

33. A sintered sliding material according to claim 31, wherein said nitride includes one or more nitrides selected from the group consisting of TiN, CrN and Si_3N_4.

34. A sintered sliding material according to claim 31,

wherein said oxide includes one or more oxides selected from the group consisting of NiO, Cu_2O, CoO, TiO_2, SiO_2 and Al_2O_3.

35. A sintered sliding material comprising a bronze alloy-Mo based sintered compact,

wherein said bronze alloy-Mo based sintered compact is composed of a bronze alloy phase containing Mo of 5 to 75wt% and Sn of 5 to 20wt%, said bronze alloy-Mo based sintered compact having a relative density of 90% or more.

36. A sintered sliding material according to claim 35, wherein said bronze alloy phase contains one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

37. A sintered sliding material comprising a bronze alloy-Mo based sintered compact, wherein said bronze alloy-Mo based sintered compact is formed such that a Mo powder compact is sintered simultaneously with being infiltrated with bronze alloy based infiltrant, said bronze alloy-Mo based sintered compact containing Mo in an amount of 35 to 75wt%.

38. A sintered sliding material according to claim 37, wherein said Mo powder compact contains at least either one of a solid lubricant or a hard particle dispersing material in a content of 5 to 60% by volume mixed therewith.

39. A sintered sliding material according to any one of claims 35 to 38, wherein said bronze alloy-Mo based sintered compact contains one or more hard particles selected from the group consisting of intermetallic compound, carbide, nitride, oxide and fluoride, which are harder than Mo phase or bronze phase, dispersed therein in a content of 0.2 to 10% by volume.

40. A sintered sliding material according to any one of claims 35 to 38, wherein a content of Mo is regulated to 35 to 65wt% so that said bronze alloy-Mo based sintered compact has a thermal expansion coefficient of 1.1 to 1.5×10^{-5}.

41. A sliding member having a sintered sliding body, wherein said sintered sliding body is made of a porous sintered compact composed of Mo or Mo alloy containing one or more elements selected from the group consisting of Cu, Ni, Fe and Co in an amount of 10wt% or less, said porous sintered compact, having a porosity of 10 to 40% by volume, containing a low-melting metal,

which is principally made of one or more elements selected from the group consisting of Pb, Sn, Bi, Zn and Sb and adjusted to have a melting point of 450°C or less, or an alloy of the low-melting metal filled in pores thereof.

42. A sliding member having a sintered sliding body,

wherein said sintered sliding body is made of a bronze alloy-Mo based sintered compact composed of bronze alloy phase containing Mo of 5 to 75wt% and Sn of 5 to 20wt%, said bronze alloy-Mo based sintered compact having a relative density of 90% or more.

43. A sliding member having a sintered sliding body,

wherein said sintered sliding body is composed of a bronze alloy-Mo based sintered compact formed such that a Mo powder compact is sintered simultaneously with being infiltrated with a bronze alloy based infiltrant, said bronze alloy-Mo based sintered compact containing Mo in an amount of 35 to 75wt%.

44. A sliding member comprising a back metal and a sintered sliding body which is combined with the back metal,

wherein said sintered sliding body is made of a porous sintered compact composed of Mo or Mo alloy containing one or more elements selected from the group

consisting of Cu, Ni, Fe and Co in an amount of 10wt% or less, said porous sintered compact, having a porosity of 10 to 40% by volume, containing a low-melting metal, which is principally made of one or more elements selected from the group consisting of Pb, Sn, Bi, Zn and Sb and adjusted to have a melting point of 450°C or less, or an alloy of the low-melting metal filled in pores thereof.

45. A sliding member according to claim 41 or 44,

wherein said porous sintered compact contains one or more hard particles selected from the group consisting of intermetallic compound, carbide, nitride, oxide and fluoride, which are harder than Mo phase or bronze alloy phase, dispersed therein in a content of 0.2 to 10% by volume.

46. A sliding member comprising a back metal and a sintered sliding body which is combined with the back metal,

wherein said sintered sliding body is made of a bronze alloy-Mo based sintered compact composed of bronze alloy phase containing Mo of 5 to 75wt% and Sn of 5 to 20wt%, said bronze alloy-Mo based sintered compact having a relative density of 90% or more.

47. A sliding member according to claim 42 or 46,

wherein said bronze alloy phase contains one or more elements selected from the group consisting of Ti of 0.2 to 5wt%, Al of 0.2 to 14wt%, Pb of 0.2 to 15wt%, P of 0.1 to 1.5wt%, Ni of 0.1 to 10wt%, Co of 0.1 to 5wt%, Mn of 0.1 to 10wt% and Si of 0.1 to 3wt%.

48. A sliding member comprising a back metal and a sintered sliding body which is combined with the back metal,

wherein said sintered sliding body is made of a bronze alloy-Mo based sintered compact formed such that a Mo powder compact is sintered simultaneously with being infiltrated with a bronze alloy based infiltrant, said bronze alloy-Mo based sintered compact containing Mo in an amount of 35 to 75wt%.

49. A sliding member according to claim 43 or 48,

wherein said Mo powder compact contains either one of a solid lubricant or a hard particles dispersing material mixed thereto in a content of 5 to 60% by volume.

50. A sliding member according to any one of claims 42, 43, 46 and 48,

wherein said bronze alloy-Mo based sintered compact contains one or more hard particles selected from the group consisting of intermetallic compound,

carbide, nitride, oxide and fluoride, which are harder than Mo phase or bronze alloy phase, dispersed therein in a content of 0.2 to 10% by volume.

51. A sliding member according to any one of claims 42, 43, 46 and 48,

wherein a content of Mo is adjusted to be 35 to 65wt% so that said bronze alloy-Mo based sintered compact has thermal expansion coefficient of 1.1 to 1.5×10^{-5}.

52. A sliding member according to any one of claims 44, 46 and 48, wherein said back metal is made of steel, cast iron and Al-Si based alloy, each having thermal expansion coefficient of 1.1 to 1.5×10^{-5}.

53. A sliding member according to any one of claims 6 to 8, 44, 46 and 48,

wherein said sintered sliding body is combined with said back metal by any method of sintering-bonding, sintering-infiltrating-bonding, brazing, caulking, fitting, forcing, adhesion, bolt tightening and clinching.

54. A sliding member according to any one of claims 6 to 8, 44, 46 and 48,

wherein said sintered sliding body is combined

with said back metal by sintering-bonding, said bronze alloy phase in said sintered sliding body containing at least either one of Ti or Al in an amount of 0.5wt% or more.

55. A turbo charger device equipped with a sliding member according to any one of claims 41 to 44, 46 and 48.

56. A hydraulic piston pump or a hydraulic piston motor equipped with a sliding member according to any one of claims 41 to 44, 46 and 48.